

GREENE (Wm W.)

REPORT ON OVARIOTOMY,

READ BEFORE

THE MAINE MEDICAL ASSOCIATION,

JUNE 29, 1870,

BY

Prof. Board Coll

PROF. WM. WARREN GREENE, M. D.

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Report of the Committee on Ovariectomy.

BY PROF. WM. WARREN GREENE, M. D., CHAIRMAN.

MR. PRESIDENT AND GENTLEMEN OF THE ASSOCIATION:

It is probably a warrantable assumption, that among the great majority of surgeons to-day, ovariectomy, in well selected cases, is regarded as a legitimate operation, and that this procedure is daily gaining a more secure position in the great family of surgical expedients. Assuming also that you are sufficiently familiar with the pathology and diagnosis of ovarian tumors, and with the history of the operation for their removal, the most important questions remaining for our consideration are the selection of proper cases, the best time and mode of operating and the most appropriate after treatment, and it is to these several points that your attention is invited this afternoon.

Selection of cases. There can be no doubt that ovariectomy, like every other important operation, has suffered very much in reputation at the hands of a certain class of surgeons who seem, to use a homely expression, to "cut for luck." Men who, actuated by a mistaken judgment or unworthy ambition, fail to discriminate in their selection of cases, but operate whenever an opportunity presents itself. It is true that such operators often succeed, and at times and under peculiar circumstances their results seem, to a superficial observer, to compare favorably with those of the most judicious surgeon; but while an operation unwarrantably and unskillfully performed, under circumstances apparently the most adverse, may chance to result favorably, and another entirely legitimate, and executed in the best possible manner fails to save,

it is after all only from the latter class in *large numbers* and under all varieties of place and circumstance, that statistics of any value can be compiled, and therefore it is that statistics in general are to be received with so great caution.

The simple statements that A. has operated so many times and saved eighty per cent., and that B. has operated an equal number of times, losing eighty per cent., are void of value or significance in determining the merits of the operation *per se*, or even in the given cases, unless the precise character of the cases, all the circumstances connected therewith and the manner of operating are understood. Hence, the surgeon should be very careful that he does not make too much of a limited personal experience; drawing hasty conclusions in the light of early successes or reverses, remembering that the only safe averages are large ones, and that the materials, from which those of sufficient magnitude for the definite solution of many problems in ovariectomy can be taken, are not yet in our possession, although rapidly accumulating.

In deciding upon the propriety of an operation in any particular case, the following considerations cannot be too strongly impressed upon the mind :

1st. *Ovariectomy is a very serious and dangerous operation.*

Admitting its perfect legitimacy under certain circumstances, and that in well selected cases, in the hands of a skillful and judicious surgeon, over fifty per cent. are saved, it must still be borne in mind by the operator, and clearly understood by the patient and friends, that *in each individual case* the danger is great. Given a number of cases sufficiently large that unusual conditions and exceptional results shall not disturb the general average, and we can, even with our limited data, foretell with some degree the general result; but no man can say what the issue shall be *in any particular case*. Every surgeon of much experience in this operation has seen the most unpromising cases recover, while others, which under the closest scrutiny seemed the most flattering, in their fatal termination have taught him how grave a thing it is to subject a woman to this procedure.

2d. *Ovarian tumors do sometimes spontaneously disappear.*

So rarely, to be sure, does this occur, that in any single case its occurrence is a mere possibility, yet it has happened repeatedly, as is attested by cases reported in the medical journals, and by several which have occurred in the practice of members of this Association, and this possibility should have its full weight in the balancing of chances.

3d. *Not very infrequently, these tumors, after attaining a certain size, which may be very large, cease to grow, either spontaneously or through the influence of treatment, and the patients becoming accustomed to and tolerant of their presence, live in comparative health and comfort for many years, often dying at last of some other disease.*

It would be foreign to the instructions given to your committee to recount the various methods of treatment which may arrest or destroy these growths other than extirpation, with one exception, viz, tapping. Upon the question whether tapping should be practiced as a measure preliminary to and preparatory for the radical operation of excision, ovariologists are divided. The main argument against tapping seems to be that this operation is occasionally followed by a severe shock, and sometimes by a peritonitis, which may either prove fatal, or leave behind adhesions which shall render extirpation much more difficult, if not impracticable.

Unquestionably, fatal results, either from shock or peritonitis or both combined, do occasionally, although *very* seldom, follow tapping, and it seems very clear to us that this fact, instead of constituting an objection, when fairly viewed becomes an argument of no small weight in favor of the operation, as the best and perhaps the only means of determining the peculiar tendencies in a given case.

Certainly it is fair to infer that if the comparatively trivial operation of paracentesis produces such serious results, the graver one of excision, which includes the lesser one, must yet more surely destroy the patient. To the objection that the peritonitis following tapping may be so mild that the patient makes a good recovery, and yet leave behind such extensive adhesions as to

embarrass the operation of extirpation, the answer is that these adhesions are almost never of such a character as to prevent the completion of the radical operation, and that these very cases are those which *as a rule do the best*. The system has acquired a tolerance of morbid action in this locality, and more than this, by the inflammation, the character of the peritoneum, as a serous membrane, is destroyed, and its proclivity to inflammation by so much diminished. This we think the true explanation of the fact that, other things being equal, the shock to the system, and the subsequent inflammation are both less in those cases where extensive adhesions exist. As has been already remarked, the cases where these adhesions are sufficient in extent or firmness to render the removal of the tumor impracticable almost never occur, or so infrequently that such a contingency is to be looked upon as a bare possibility.

The arguments for tapping ovarian cysts may be briefly stated thus:

1st. The single operation is sometimes followed by an entire arrest of growth, and occasionally by an apparent obliteration of the sac. The latter event perhaps never takes place except in unilocular cysts; the former, while most frequent in single cysts, happens occasionally in multilocular tumors.

2d. Although the sac or sacs refill, yet if the interval be sufficient, as it often is, for the restoration of general health and vigor, the operation may, by judicious repetition, keep the patient alive and in comfortable health for years, and while generally the intervals between the tappings shorten with repetition, occasionally they lengthen, and at last the disease is staid. There are patients now living in the city of Portland and vicinity illustrating in their history the truth of both the foregoing propositions.

3d. Preliminary tapping allows the displaced and compressed viscera to resume their proper position and function, thus putting the system in better general condition for withstanding a capital operation.

4th. It tests the liability of the system to shock or inflammation, and the patient suffering and recovering from the one or the

other or both, acquires a tolerance of surgical interference, which is of value. The importance of adhesions has already been noticed, and it is not believed that the cases where they prove an insuperable obstacle to removal are any more frequent than those where tapping proves a cure for the disease. If fatal results follow the minor operation, such an accident only demonstrates that unusual state of the constitution which would have necessarily rendered fatal the major operation.

5th. In many cases an accurate diagnosis can only be made after tapping.

In some instances, questions of malignancy, mobility, points of attachment, uterine relations, &c., can only be thus determined, while in others, especially in the monocystic forms, a knowledge of the character of the fluid is essential to the formation of a satisfactory opinion. Had this precaution been always taken, many a patient with a fibro-cystic uterus, or cysts of the broad ligament or mesentery, or even, strange to say, sometimes with ascites, would have been spared abdominal section.

It is hardly necessary to remark that a small proportion of ovarian tumors are of such a nature as to render puncture useless, unless it is done merely as an exploratory measure. These are the fibroid form of degeneration, and those polycystic growths in which the numerous sacs are all very small, but in these even the evidence, either positive or negative, furnished by the trocar, often renders plain what is otherwise obscure.

At this point two questions naturally arise. 1st. How early shall the first tapping be made? 2d. What circumstances are to guide us in its repetition?

To the first question our reply is, wait just as long as the patient can, by the various palliative measures, and by careful and ingenious mental diversion and encouragement, be made tolerably comfortable. In other and perhaps better language, wait until, in spite of all that can be done, the growth has made a decided impression upon the general health. Here is an opportunity for the exercise of much skill and tact on the part of the surgeon. Many women will carry slowly growing tumors until they attain an im-

mense size (at which point they sometimes cease to grow) cheerfully and bravely and in fair health, under the proper medical management, who would early and rapidly succumb in the hands of those men who cultivate operations.

The reasons for recommending this rule are that in a majority of cases the disease progresses more rapidly after than before the tapping, and also that there is less danger of shock or of subsequent peritonitis where the pressure of the morbid growth has been long sustained.

Of course, exceptional cases occur, where from purely physical causes comparatively small tumors produce so much trouble as to require interference, and others in which the mental condition is such as to forbid long delay, nor in any case is the size of the tumor alone a test of the propriety of tapping. In one case, a very large single or multiple cyst, free from adhesions, may be carried with but little discomfort, while in another, in other respects precisely similar, firm adhesions compelling the growth in particular directions may render a much smaller tumor very troublesome. Here, as in all departments of surgery, special cases occur which can be brought under no general rules.

The propriety of repeating the paracentesis depends upon the rapidity with which the tumor refills, and upon the condition of the patient's health in the meantime.

If the growth attain its original size again within a few weeks, such rapid return of fluid indicates a perversion in the direction of the nutritive forces that gives little encouragement for a repetition of the palliative operation. If, on the other hand, an interval of several months occur, during which time the general health has in a marked degree improved, then the indication is plain for a repetition of the operation; and so long as such intervals occur, so long should theappings be repeated.

We conclude, therefore, that the following conditions should be observed in the selection of cases for ovariectomy.

The tumor should be benign. The results of interference with malignant neoplasms in this locality are not encouraging.

If the growth be fibroid or composed of cysts so small as to contra-indicate the use of the trocar, the operation should be

made when the system becomes so affected as to render an early, fatal termination probable. For the ascites, which often exists in these cases, when extreme, tapping is the proper remedy and is often of great value as a palliative measure and as an aid to diagnosis.

The large cysts, whether single or multiple, should be removed when paracentesis fails to give a sufficient interval for the renewal of the patient's strength; and a favorable moment is when, after the last tapping, the tumor gives unmistakable evidence of refilling rapidly.

In the remarks upon tapping, we have already stated what we wish to enunciate with much emphasis as our opinion, to wit: *Except in very special and extraordinary conditions, ovariectomy is not justifiable until, in spite of all the surgeon's efforts, the system is decidedly impressed by the disease; until that point is reached when the operation, instead of shocking the system, shall lift from it a serious burden under which it has bent, and the relief from which it will at once recognize.*

In no case where this rule has been observed, have we seen any collapse following the operation. While we deem this rule so important, care is of course to be exercised not to postpone the excision until the reactive power or elasticity of the system is lost. The precise time for each case must be determined by a careful study of the case itself.

Individuals who have reached an advanced age, or who are laboring under any serious organic affection, are not fit subjects for the operation.

In urgent cases, where the diagnosis remains obscure after the employment of all available means, the surgeon is justified in making an exploratory incision, by the revelations of which he is to be guided in deciding upon the course to be pursued.

Finally, *The operation should only be made with a full and fair understanding, on the part of the patient and friends, of its merits and demerits, and in accordance with her or their deliberate choice.*

THE OPERATION.—The preparations and appointments for all capital operations are so similar that they require no mention

here. I shall therefore briefly consider the operation itself in its more important features, and in so doing shall speak in the singular number, for reasons which will be apparent before I close.

The mere removal of an ovarian tumor is, in favorable cases, one of the simplest performances in the whole range of operative surgery. Like amputations, it has an appalling aspect to the uninitiated, and like the former its performance has proved the source of many a cheap, popular reputation for the operator; yet any man who can make an incision, tie a knot, and introduce sutures, can make ovariectomy in a manner which shall win the plaudits of the populace, and as I have before said, the veriest bungler will sometimes save his patient. Nor does the operation afford the accomplished surgeon an opportunity for the display of the highest degree of operative skill. Serious as it is in its results, capital as it is most emphatically, it is nevertheless, from an artistic point of view, one of the coarser operations. Notwithstanding this, its *proper* performance, in the manner that gives the patient the maximum number of chances of recovery, requires correct anatomical knowledge, the knowledge and discipline that prepare for emergencies, and delicacy and skill in manipulation, to say nothing of the exercise of ordinary care and prudence. If any proof of this is needed it is found in the fact that in the history of ovariectomy may be found cases where operators have failed to reach the tumor, mistaking a thickened peritoneum for an adherent sac, where intestines or other viscera have been wounded, instruments and various foreign substances have been left in the abdominal cavity, bleeding vessels have been left unsecured, unclean sponges and sutures have poisoned the patient, etc. Not, certainly, from men who allow such things, shall we ever obtain statistics of any value.

INCISION.—It is generally impossible to judge of the length of incision necessary for the removal of the tumor, until it is exposed. The first incision should be very short, in the lower part of the *linea alba* or close beside it, and through the entire thickness of the abdominal walls. It must then be extended from below upward with the knife or scissors, dividing the entire thickness of the parietes at each stroke. Of course, other things being

equal, the shorter the incision the less the danger, and when, besides, it is remembered that the gravity of peritoneal wounds is in direct ratio to their altitude, those in the hypogastric region of themselves rarely producing death, while those near the epigastrium are generally fatal, the wisdom of making the smallest possible opening at the lowest possible point is evident. The surgeon will often be surprised at the facility with which an immense polycyst can be extracted through a small opening. Even if he is sure that a long incision will be necessary, let him begin with a very short one extending, as has been said, through the peritoneum. By so doing he avoids the retraction and separation from one another of skin, fasciæ and peritoneum, which will inevitably take place, when the parietes are much distended, if long strokes are made with the knife, dividing the several layers successively, and so leaves the edges in much better condition for healing kindly. For the same reason the recommendation is made that in extending the section from below upward, the entire thickness of tissue should be divided at each stroke.

EXTENSION OF TUMOR.—Having made an opening of sufficient length to bring a portion of the tumor fairly into view, the surgeon carefully and gently explores with the hand the anterior surface of the growth to determine its precise nature, and to ascertain the amount and firmness of adhesions. If the mass prove to be solid, or composed of cysts so small as to render reduction of its size by puncture impracticable, he will at once proceed to enlarge the incision to the necessary extent, and, cautiously breaking up adhesions if any exist, lift it out of the cavity. If however, as usually happens, one or more large cysts are present, these should be evacuated one after the other with Wells's trocar, until the entire mass is reduced to the smallest possible size. Then the hand is carried into the abdomen, as in the other case, adhesions searched for, and if found broken up, and the tumor gently withdrawn from the peritoneal cavity, and steadily supported without strain upon the pedicle.

In the absence of Wells's instrument, the common trocar or a bistoury answers the purpose for puncturing the sac, but the

former instrument is the most convenient and cleanly, and diminishes the important liability of any entrance into the peritoneal cavity of the cystic contents. Occasionally the cyst walls are so extremely thin that they rupture spontaneously the moment the support of the abdominal walls is removed.

The importance of adhesions in a prognostic point of view has been already noticed. One unaccustomed to this complication will be surprised at the facility with which these bands of organized lymph may be peeled off from the tumor, or from the peritoneum, and it is very rare that separation from either the visceral or parietal portions of this membrane cannot be effected without laceration of it. This should be accomplished, so far as practicable, with the fingers to avoid hemorrhage, and for the same reason the scissors should be employed instead of the knife when cutting is indispensable. As to the exact amount of force requisite or admissible in these cases, no rule can be given, but the operator who combines skill with judgment, and resolution with prudence, will rarely find this difficulty insuperable.

COMPRESSION. Firm, steady, evenly distributed pressure over the entire abdomen should be maintained by assistants throughout the operation. The object is three-fold. By it the system is spared the shock which follows the sudden removal of long continued pressure from important organs, and which has occasionally proved fatal. By this means, exposure of the peritoneum to the air is lessened and a more even temperature secured, and again, when cysts are opened, compression thus made is a great safe-guard against the escape of the fluid into the cavity of the peritoneum.

The degree of danger from this accident is not yet definitely estimated, but clinical observation seems to have proven that this material having been brought in contact with the atmosphere; and then lodged upon the surface of the peritoneum, becomes a source, more or less fruitful, of inflammation and septicæmia. Hence, great care should be exercised to prevent such contact.

MANIPULATION AND SPONGING. The surgeon cannot be too careful of the condition of his hands when about to make ovariectomy. It is of course his duty to keep them always in the best

possible state for his peculiar work, but here they are very likely to be brought into close and perhaps long continued contact with the abdominal viscera, and with a very extensive and active absorbing surface, therefore let him be sure that his hands and nails are absolutely clean, and in such a state as to produce the least possible friction. The same caution should be exercised with regard to the texture and cleanliness of sponges.

These suggestions may seem unnecessary, and to the members of this Association I trust they are so, but having once seen a surgeon of repute operate with squamous hands and uncleansed finger nails, allowing a seal ring to remain upon the little finger while it was within the abdomen, and his patient rapidly sink under acute peritonitis, and another surgeon and good operator use sponges which I verily believe produced a fatal septicæmia, I cannot refrain from calling your attention to these points. Indeed, so far as sponges are concerned, I very much fear that many operators are careless to a degree that would be surprising to themselves if they gave the subject a little thought; if they considered how exceedingly difficult it is so thoroughly to cleanse a sponge once soiled with septic material of any kind as to render it absolutely safe. A proper rule in all operations is, to make sure that our hands, instruments and sponges are in such condition that we would be willing to submit our own persons to their contact, in case of necessity.

Furthermore, I deem it of great importance *that the hands of the operator be at blood heat when introduced into the cavity, and that the temperature of the sponges be kept constantly up to this point.* In other words, that the normal temperature of the peritoneum and abdominal viscera be maintained as nearly as possible during the operation. Of the value of this measure in all large operations as a prophylactic against shock and inflammation, and in minor ones as facilitating union by first intention, I feel entirely sure from abundant observation. Since recommending this plan in 1868, I have constantly employed it with the most satisfactory results.

My own practice has been to use hot artificial serum (albumen 1 dr., salt 1 dr., pure water 1 oz.) for sponging. Dr. Hill has, like

many others, used pure water with excellent results; and I confess that as my own observation enlarges, I am inclined to attach comparatively less importance to the serum and more to the temperature.

TREATMENT OF THE PEDICLE. Upon no other point in ovariectomy is there such diversity of opinion and practice as in the treatment of the pedicle. The various methods recommended and practiced by different surgeons are undoubtedly familiar to all, and I shall only allude to them for the sake of comparison. Whatever mode of securing the stump is adopted, the separation should be effected as near the tumor as possible. My colleague has given this subject particular study, and his observations seem to show conclusively, that there is an intimate relation between the amount of reflex gastric irritation and of nervous depression following the operation, and the distance from the uterus at which the pedicle is secured. The farther this point is from the uterus the less the danger of reflex disturbance. In many instances the pedicle is so short as to leave no room for choice, but the safe rule is, always dividè as close to the tumor as possible.

Of the many devices for securing the stump, the clamp of Mr. Spencer Wells is in quite common use, and for the management of long pedicles is excellent. With its use the process of sloughing and healing goes on outside of the peritoneal cavity, and so the dangers of inflammation and septicæmia are very much diminished. But by this method the stump is permanently fixed in the track of the incision, and it is only a certain proportion of pedicles which are long enough to admit of this fixation without liability to serious strain upon the uterus and its attachments in the varying conditions of this organ and of the amount of abdominal distension.

A powerful rival of the clamp is the ligature. Some surgeons prefer to cut both ends close, and dropping the stump back into the abdomen close the incision completely, trusting to the chance either of encapsulation of the ligature, or its final solution and absorption. Others leave one end long, bringing it out either at the lower angle of the wound or through the posterior *cul de sac* of the vagina. The first mode of applying is the simplest possible,

but not a little danger lies in the fact that the probable ulceration and suppuration must go on concealed from view with no opportunity for drainage.

The use of metallic ligatures, however, diminishes this danger considerably. The practice of leaving one end protruding externally has in view of course its final separation and extrusion. Until within the last two years I have exclusively practiced carrying the ligatures through the *cul de sac of Douglass*, for the reason that this plan afforded an opportunity for complete union of the wound in the abdominal walls by first intention, and for, apparently, the most perfect drainage, and in 1868, in connection with some cases reported in the Boston Medical and Surgical Journal, I took strong grounds for this practice in preference to any other. I must in candor confess, that I feel less positive to-day. I still consider it an excellent way, but I have recently, for special reasons, been obliged in several instances to bring the ligatures out at the dependent angle of the incision, and the drainage has seemed as perfect, and the facility for washing out the abdominal cavity quite as good as when the opening was behind the uterus. The fact seems to be that, although theoretically there is quite a deep pelvic fossa to be filled by the gravitating fluids, and the draining of which, at its most dependent portion is philosophical, and would seem so necessary, yet practically by thorough compression such as will be advised, the viscera are so closely crowded into the pelvic basin as to displace any liquid there, and so through a supra-pubic opening the abdomen is kept empty, even with the patient supine.

I must also state that I have had three cases in which, with the ligatures carried through the vagina, well marked Phlegmasia Dolens appeared before the ligatures separated. True, this might have happened had any other plan been pursued, but the fact that in these cases the separation was tardy, the suppuration considerable, and that the affection appeared on the corresponding side with the stump, renders it probable, to my mind, that the long continued presence of the ligatures so close upon the uterine plexus and the iliac vein, had something to do with the occurrence of this complication. I know that the same thing has happened

in the practice of several of my friends, but how frequently it may have occurred when a different disposition has been made of the ligature I do not know, and without such knowledge we are not justified in assuming anything more than a probable connection between the disease and the position of the ligature. It is a little curious that all the cases where I have known "milk leg" to follow ovariectomy have recovered.

Dr. Hill has always left the ligatures at the lower angle of the wound, and the fact that so skillful and sagacious a surgeon has been, until now, entirely satisfied with this method, and still prefers it to any other management of the ordinary ligature, is sufficient proof of its value.

As compared with a more perfect method, the ligature, whether brought through the one point or the other, is open to the objection of provoking ulcerative and suppurative action, and of such delay in separation, often requiring three or four weeks, as to subject the patient to great risk from pyæmia.

The *écraseur* has been employed for dividing the pedicle, but is open to the same objection as Baker Brown's plan with the actual cautery. Both are good if they are safe, but neither are reliable as safe-guards against hemorrhage.

Of the plans heretofore proposed, that of Dr. Emmet, of New York, by the shoemaker's suture of silver wire, is one of the simplest, most effectual and unobjectionable. Its only imperfection, so far as I can see, lies in the fact that occasionally silver wire, usually innocuous, provokes suppurative inflammation. This same objection applies to the "capping" proposed by Prof. H. R. Storer, of Boston.

Prof. Storer's plan of "Pocketing the pedicle," like the clamp, is only admissible in very long pedicles. In these cases, if perfect union by first intention takes place, the plan is perfect, perhaps, except that after confinement of the stump in the abdominal walls by any means, there is always a greater liability than before to intestinal strangulation. But if such union fails the danger of pyæmia is imminent.

I have sometimes been tempted to try torsion, twisting the pedicle off close by the tumor, but have not done so. If the

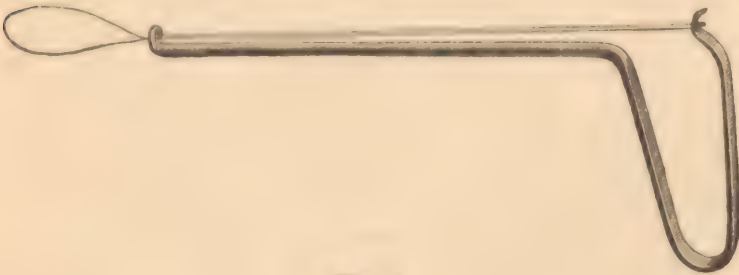
torsion was sufficient to control hemorrhage this would be a successful mode.

For supporting the pedicle while it is being secured in whatever manner named, Prof. Storer's clamp shield, which has been fully described in the medical periodicals, is an excellent instrument. In long and narrow pedicles it is unnecessary, but in those which are unusually short and thick I have used it repeatedly with great satisfaction.

It is evident from this cursory view of the different ways of treating the pedicle, all possessing more or less excellence, that each is open to important objections. Of neither can it be said that it leaves nothing more to be desired.

I have now to propose a new method which commends itself entirely to my own judgment and to that of my colleague.

A few months ago, in conversation with Dr. Hill, he described to me and subsequently sent me an instrument which he had devised and made with his own hands for the removal of intra-uterine polypi.



* Fig. 1.

Fig. 1 gives a correct idea of this instrument, which is merely a steel rod three-sixteenths of an inch in diameter, with a perforated shoulder turned at one end, the other end flattened and bent into the spring, which is better described by the picture than by words. The straight shaft is six and one-half inches long. The *modus operandi* suggests itself at a glance. The ligature, for which Dr. Hill employs hempen thread and annealed iron wire twisted together, is cast about the neck of the polypus; the two ends are then passed through the shoulder, which is pushed

firmly up to the pedicle and fastened to the extremity of the spring while it is closed by the hand. The moment the hand is removed the force of the spring strangulates the growth, and *this force is constantly maintained until the ligature cuts its way through.*

Dr. Hill stated that with a large experience in its use, he had never failed to remove the growth without any trouble, and that *there had never been, in a single case, any suppuration whatever.* To quote his quaint expression, "I apply it, and tell the woman when it comes away to wash it and send it home." He also stated that the time required for dividing the hardest and largest pedicle of a uterine fibroid rarely exceeds a week. My delight at the simplicity and evident effectiveness of this contrivance was only equaled by my surprise that the doctor's modesty had prevented his bringing its merits to the notice of the profession. It immediately occurred to me that its range of application could be much extended, and that in the removal of rectal, nasal or naso-pharyngeal tumors, and in the treatment of deep-seated, pediculated tumors of the neck, it would, with some modification of size and perhaps of shape, take the place of the double canula and ligature. With these suggestions Dr. Hill entirely agreed, as also with the idea of having springs of different sizes and degrees of power, all fitting the same shaft, fastening with a catch spring or a thumb-screw, and of grooving the shaft so as to sink the ligature below its level, letting the groove terminate in an opening at the end of the shaft, thus doing away with the shoulder. The original spring was also a little too long, lifting the ligature a little above the level of the rod. Finally, Dr. Hill was so kind as to place the instrument in my own hands, with the request that I would study and modify it as I pleased, and make such disposition of it as I thought best.

After a little reflection I became satisfied that here was precisely the kind of action which was needed in treating the ovarian pedicle. The reason why the ordinary ligature is so slow in action, and causes so much suppuration, is that after it is tied it begins to loosen, and after a little ulceration its tension is entirely lost, and it lies in the track of ulceration as a foreign body. Ap-

plied with this spring, however, its action is unremitting, and not only must it be much more rapid for this reason, but it cannot for a moment linger upon the divided surface as an irritant. To Dr. Hill's mind, as to my own, the evidence furnished by his cases of intra-uterine fibroids was conclusive that the healing process followed immediately in the track of the ligature, hence the entire absence of discharge.

My first step was to carry out the modifications of the original instrument, which I have already referred to, and which Fig. 2 illustrates.*

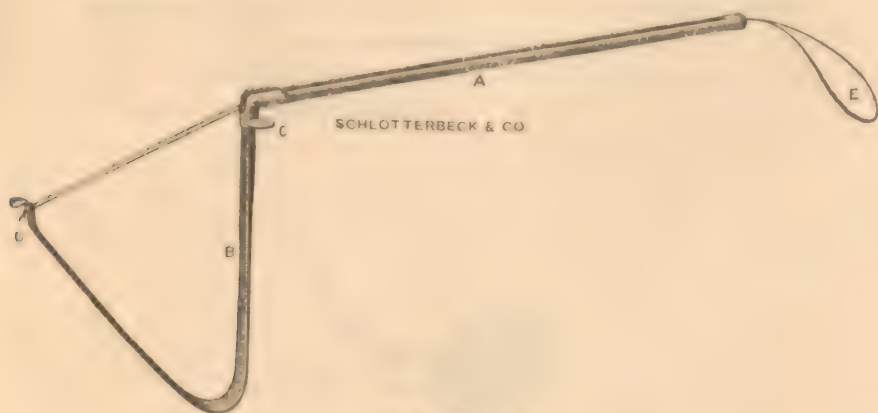


Fig. 2.

A is the shaft, three-sixteenths of an inch in diameter and eight inches long, grooved to the centre except at the end where the groove becomes a perforation, through which the ligature E passes to be fastened to the spring at D. The other side of the spring B fits into an opening and fastens with a thumb-screw at C. This makes a perfect instrument for intra-uterine work and for removal of neoplasms from rectum, nose or throat. For nasopharyngeal tumors the shaft of the one which I have is only four inches long, and the whole instrument very light.

The modified instrument is made longer than the first one, to adapt it to the ligation of the ovarian pedicle through *Dougllass cut de sac*. It should be curved for this purpose, to correspond

*The various instruments were shown the society.

to the vaginal canal, with the convexity upon the side of the groove.

That this is a vast improvement upon the old plan of ligating through the vagina I cannot for a moment doubt, and I have already discussed the merits of this plan in general. But in view of the rapidity with which the separation can be effected, and the fact that good and sufficient drainage can ordinarily be effected through the lower angle of the wound, I am inclined to think that the greater facility of its application, and the greater immunity which it affords from Phlegmasia Dolens, will lead to the use, by preference, of the instrument represented in Fig. 3, which is to carry the ligature through the dependent point of the wound. After much experimenting, I feel confident that I have found the most desirable form.

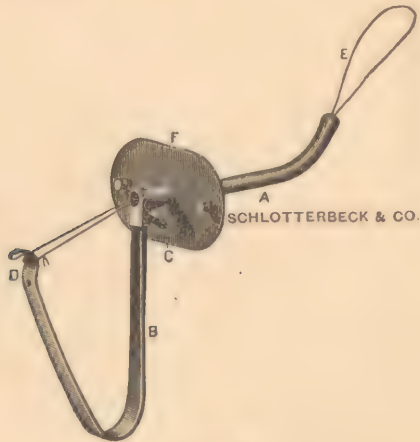


Fig. 3.

A is a short steel shaft moderately curved near the end, and grooved and perforated for the ligature as in Fig. 2. This screws into the steel plate C F, which supports upon its upper surface a short, upright, hollow cylinder, the tube being continuous with the groove of the staff when fitted. An angular off-shoot from this receives the spring B, which fastens as in the other form of the instrument.

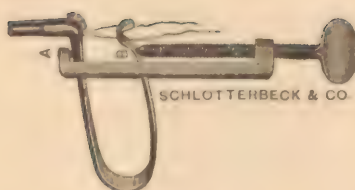


Fig. 4.

Fig. 4 shows the operation of a screw and clamp for closing and holding the spring while the ligature is being adjusted. Its application is perfectly simple and easy. The ligature, which should be a metallic one, having been cast around the pedicle close upon the tumor, is passed through the canal to D and fastened while the spring is shut. The shaft rests in the lower angle of the incision, which is elsewhere closed. The plate rests upon the integument, the spring lying upon the pubis in the median line. It will receive sufficient lateral support from the bandage. The entire instrument weighs less than Wells's clamp. The groove becomes a canal for any necessary drainage. The length of the shaft should be sufficient to support the stump in its normal position without any strain, or perhaps raised a little from the posterior surface of the pelvic wall. On account of the great variation in the thickness of the parietes in different individuals, I have had three shafts made of different lengths for the same plate, the shortest measuring two and a half inches, and the longest four and a half inches. The plate should be made with two openings to adapt it for receiving the second shaft in double ovariectomy.

I regret that no opportunity has been offered to test practically the working of this little instrument, which was only finished a few days ago, but with my colleague's experience in fibroid growths, and the inferences that force themselves upon my mind, I can truly say that I have no more doubt of its successful operation than if I had seen it applied. My confidence in it is perfect. In saying this I only express Dr. Hill's unqualified opinion.

We have agreed to christen it the *Spring Ligator*, and in its applicability to all cases, the rapidity and certainty with which it

will accomplish its work, and the immunity which it offers from septicæmia, I feel sure that it is worthy of your careful consideration.*

It should be made of the best steel and plated with gold, silver or nickel, according to the taste or judgment of the surgeon. The instrument is thoroughly made and packed in a neat case by Schlotterbeck & Co., of Portland, and to the manufacturer I am indebted for the exercise of much patience and for valuable suggestions.

After what I have said it is hardly necessary to repeat, that the credit of this instrument in its original form (Fig. 1) belongs entirely to Dr. H. H. Hill, of Augusta. The modifications only are my own.

DRESSING THE WOUND.—After the pedicle has been cared for by whichever method the operator prefers, all hemorrhage from divided adhesions should be arrested by torsion or by tying with delicate threads of unwaxed silk or of silver, which should be cut close. All parts of the exposed surfaces being sedulously cleansed, the lips of the wound should be accurately united with interrupted silver sutures, one-half inch apart, carried through the entire thickness of the flaps, including the peritoneum. A thick compress of nice cotton wadding or batting, applied to the abdomen and confined with a tightly fitting swathe, will insure that equable and constant compression, which is one secret of success in ovariectomy. The binder should be prepared beforehand and cut to fit, as in cases of labor, and if it fastens with pieces of tape, about two inches apart, it will be found very easy to regulate the pressure from time to time.

After Treatment. The general management of a patient after ovariectomy is the same as that after confinement. In both cases the practitioner is to meet indications as they appear. There are two points, however, to which your attention is specially directed, viz: the use of opium and the treatment of septicæmia.

*Since this report was made I have had an opportunity of testing the Spring Ligator, and find its action to be all that was hoped or could be desired. An account of it will soon appear in the Boston Medical and Surgical Journal.
W. W. G.

So great has been the fear of peritonitis, that in many instances opium in some form has been freely administered immediately after the operation, in anticipation even of it, and has been given heroically upon the slightest indication of local disturbance. A full discussion of this subject would extend this report beyond its proper limits. It must suffice, therefore, to declare it as our profound conviction that opiates in any form should be exhibited with the *greatest caution*; *pain* being the indication for anodynes, and its cessation the guide for withholding them, and one who has not had observation in this operation will be surprised to learn how little is really necessary, some cases requiring from first to last none at all. So liable is opium to derange the digestive and nutritive processes, in the absence of severe pain to neutralize it, and so depressing are its effects, at times, upon the nervous system, that exceeding care should be exercised in its use. Infinitely more harm has been done by giving too much than too little.

Whenever symptoms of septicæmia arise, indicating unhealthy action within the abdomen, thorough washing of the cavity, followed by the injection of antiseptic solutions of carbolic acid or some similar preparation, should be continued with appropriate general treatment. This can be readily done with an elastic syringe, the nozzle of which fits a double canula made for the purpose and introduced beside the ligature or shaft of the spring ligator. The opening may be enlarged a little if necessary. This is a very important measure, and should be repeated once or twice a day until the symptoms are controlled.

Finally, it is the duty of the operator, after removing one ovary, to examine very carefully the other, and if any signs of incipient disease are present to remove it at once. In fact, when its liability to become affected at some subsequent time is considered, it becomes a serious question whether the wiser rule would not be always to remove both when one requires extirpation.

WM. WARREN GREENE, M. D., }
H. H. HILL, M. D., } *Committee.*



